

# CHILDHOOD EYE DISEASES IN SAGAMU

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## SUMMARY

**Objectives:** To determine childhood eye diseases in Sagamu and compare the findings with those of other centres.

**Method:** This retrospective study covers a 3-year period (Jan 1999 – Dec 2001). Diagnoses were made by ophthalmology consultants after full examination of the eyes. A follow-up of the patients was done by ophthalmology residents

**Results:** A total of 707 new paediatric cases presented at the ophthalmology outpatient clinic during the study period. This represents 22.51% of new cases (adults and children) presenting at the Olabisi Onabanjo University Teaching Hospital (OOUTH). The overall male-female ratio was 1.2:1. Conjunctivitis (45.97%) – in particular allergic conjunctivitis (78.76% of cases of conjunctivitis), followed by refractive error (24.61%), and trauma (11.32%) were the most common causes of ocular morbidity in children. Lid diseases (3.54%), corneal scar (2.83%) and neuro-ophthalmic diseases were found to be less common. Factors favouring allergic conjunctivitis are the agrarian occupation of the people and a dusty environment.

**Conclusion:** The common causes of childhood ocular morbidity in Sagamu are comparable to the findings in studies conducted in some other centres. It was found that corneal scarring has reduced in children, probably due to a better awareness of measles immunization. Allergic conjunctivitis, however, has become an important cause of ocular morbidity in children. Refractive error was also found to be an important cause of ocular morbidity in this study as in other studies. This probably justifies its inclusion in the vision 2020 programme.

**Key words:** corneal scarring, allergic conjunctivitis, refractive error, ocular morbidity

## INTRODUCTION

The pattern of eye diseases varies from place to place and with age.<sup>1</sup> In children, ocular morbidity may be influenced by age, geographic location and the economic status of parents. Akinsola<sup>2</sup> reported that conjunctival disease is the most common cause of ocular morbidity in Lagos, followed by refractive error, injuries and diseases of the lids. Ajaiyeoba<sup>3</sup> found refractive error to be the most common cause of ocular morbidity in children in Ibadan. Information from these studies had assisted in the planning of ocular health programmes for children. Sagamu is 50km from Lagos. It is a rural town that is gradually becoming urbanized. It has a largely agrarian population of Yoruba and Hausa who make a living from the production of local crops and kolanut. This retrospective study was carried out to determine the pattern of eye diseases in children in Sagamu. The findings will be compared with studies which were done over a decade ago and suggestions will be made on possible ways of improving child eye care. Childhood eye diseases can predispose children to blindness. Consequently, this paper addresses one of the priorities of the World Health Organization (WHO) and International Agency for the Prevention of Blindness (IAPB) in Vision 2020.

## MATERIALS AND METHOD

Permission for this study was sought and approval received from the Ethical Committee of Olabisi Onabanjo University Teaching Hospital. The outpatient records of all new paediatric ophthalmology patients aged zero to sixteen years (0-16 yrs) who presented at the Olabisi Onabanjo University Teaching Hospital (OOUTH) Sagamu eye clinic, between January 1999 and December 2001, were retrieved and analysed. Information obtained includes name, age, diagnosis, visual acuity and treatment. Visual acuity was obtained using Snellen literate and illiterate charts in children above the age of 5 years. Visual acuity was tested with a pictorial chart in children between 2 and 4 years who could speak, and in those below 2 years, vision was roughly tested by the ability of the children to follow

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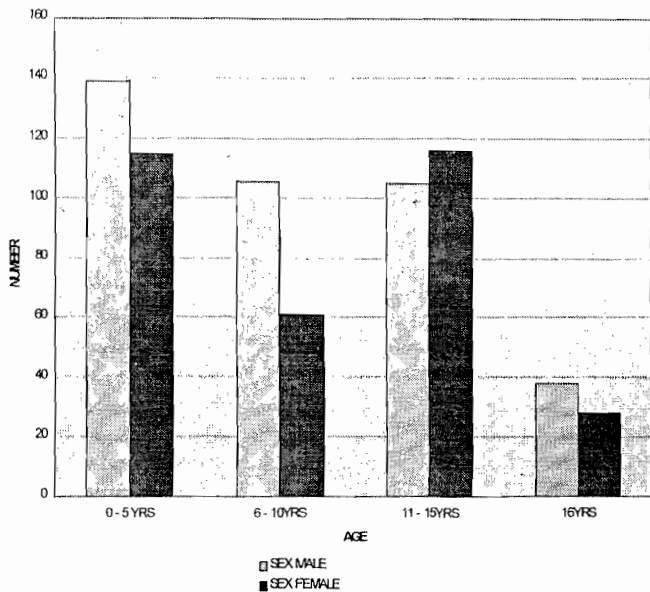
light in all directions and the ability to fixate. The eyes were examined using a pen torch, slit lamp, direct ophthalmoscope and indirect ophthalmoscope when indicated. Examination was also done under anaesthesia when required.

All undiagnosed cases and all those who came for medical tests were excluded from the study. The children were seen by three consultant ophthalmologists, which included the authors of this paper. After definitive diagnosis and commencement of treatment, follow-up was done by ophthalmology registrars.

Frequency tables of variables were generated and the chi-square test was used to assess for significance in the observed differences when relevant.

**RESULTS**

A total of 3,141 new patients – adult and children – were seen in the ophthalmology clinic during the study period (Jan. 1999 – Dec. 2001). Seven hundred and seven (707) of these were paediatric ophthalmology patients, representing 22.51% of the total. Of these, 388 were male and 319 were female, hence the male-female ratio was 1.2:1 (fig. 1), which was statistically significant (P=0.041). Children were under 5 years constituted 35.93% of the study group. There was statistical significance in the sex distribution with increasing age, as more males presented than females (P = 0.02).



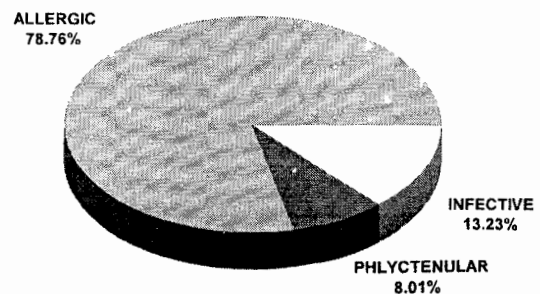
**Figure 1.** Age and sex distribution of 707 children seen at OOUTH eye clinic between January 1999 and December 2001

Conjunctivitis was the commonest paediatric eye presentation, accounting for 45.97% of cases (table 1). Of all the causes of conjunctivitis, allergic conjunctivitis was the most common (256), accounting for 78.76% of

conjunctivitis (fig. 2) and 36.21% of total new paediatric cases seen during the 3-year period. Infective conjunctivitis was found in 43 (13.23%) children, of which most were viral conjunctivitis occurring during an epidemic of adenoviral conjunctivitis. The most common organism isolated in bacterial conjunctivitis was *Staphylococcus aureus*. The remaining 8.01% of the cases of conjunctivitis was due to phlyctenular keratoconjunctivitis induced by *Mycobacterium tuberculosis* (fig. 2). This was diagnosed by a highly positive Mantoux test and the presence of hilar lymphadenopathy on a chest x-ray. There was no statistical significance in the type of conjunctivitis and sex.

**Table 1.** Diagnosis in 707 paediatric ophthalmologic cases seen at the eye clinic of the Olabisi Onabanjo University Teaching Hospital

Diagnosis	Number	%
Conjunctivitis	325	45.97
Refractive Error	174	24.61
Trauma	80	11.32
Congenital Cataract	10	1.41
Eyelid Diseases	25	3.54
Corneal Scar	20	2.84
Neuro-ophthalmological Diseases	17	2.40
Corneal Ulceration	13	1.84
Uveitis	12	1.69
Orbital Diseases	11	1.56
Neoplastic Lesions	9	1.27
Others	11	1.56



**Figure 2.** Types of conjunctivitis

Refractive error was the second most common cause of ocular morbidity in children seen at OOUTH it was found in 174 (24.61%) children. Trauma to the eyes occurred in 80 children (11.32%). It was more common in males than in females (58 males to 22 females). Blunt injury accounted for 75% of these cases while 25% was due to penetrating eye injury (table 2). Of the blunt injuries, 31.25% were subconjunctival haemorrhages and 22.92% were hyphaemas. Twenty-two of the cases of trauma were complicated by cataract. In congenital ocular diseases, congenital cataract was the most common - diagnosed in ten children - followed by dacryostenosis (table 3).

**Table 2.** Cases of childhood eye injuries seen at OOUTH

Type of Injury	Sex		%
	Male	Female	
Blunt Injury	45	15	75
Penetrating Injury	13	7	25
Total	58	22	100

**Table 3.** Analysis of 29 cases of congenital eye diseases in children seen at OOUTH

Types of Eye Diseases	Number
Cataract	10
Dacryostenosis	7
Dermoid cyst	4
Corneal scar	2
Buphthalmos	2
Microphthalmos	1
Capillary haemangioma of the lid	1
Congenital band lower lid	1
Ectopia lentis	1
Total	29

Lid diseases such as chalazion, styes and blepharitis occurred in 25 children (3.54%). Corneal scars, jeopardizing vision, occurred in 20 children (2.83%). The corneal scars were a result of infective keratitis; 12 children had post-measles keratopathy and 2 had congenital total corneal scarring. Thirteen children had active purulent corneal ulcers.

The neuro-ophthalmology cases included cortical blindness (6), cranial nerve palsy (5), optic atrophy (2), nystagmus (2), Duane's retraction syndrome (1), and migraine (1). Cerebral malaria was the cause of cortical blindness in one patient, while the rest became blind following febrile convulsion. Other less common presenting diagnoses were uveitis (12), orbital diseases (11) and neoplastic lesions (9) (table 1).

**DISCUSSION**

In this study children constituted 22.51% of the total new cases seen, which conforms with the normal population curve. In view of the total number of blind years faced when children go blind, this percentage is significant, and may explain the inclusion of the control of childhood blindness in Vision 2020 - The Right to Sight Programme.

Conjunctivitis, in particular allergic conjunctivitis, was found in this study to be the most common eye problem seen at OOUTH. Our findings are similar to those of Akinsola,<sup>2</sup> Abiose,<sup>4</sup> and Pratap,<sup>5</sup> but differ slightly from those of Ajaiyeoba,<sup>3</sup> Osahon,<sup>6</sup> and Majekodunmi,<sup>7</sup> who found refractive errors as the most common cause of ocular morbidity in children. The high preponderance of children with allergic conjunctivitis may be related to the largely agrarian occupation of the population and the frequent dispersal of pollen. In addition, some of the roads in this area are not tarred, consequently, a lot of dust and dirt are raised, predisposing susceptible children to allergic reactions. No seasonal variation in the presentation was found in this environment. Frequent recurrence and severity of symptoms often led to absenteeism from school.<sup>8,9</sup> The high prevalence of allergic conjunctivitis could also be related to the fact that, of all allergic conditions, allergic conjunctivitis is the second most common after asthma.<sup>10</sup> We found that allergic conjunctivitis can be so severe as to jeopardize vision. This complication can also arise from frequent and unauthorized use of topical steroids for treatment, which predisposes the cornea to ulceration and perforation. We support the use of non-steroidal antiallergic<sup>11</sup> drugs like cromolyn sodium 4% and lodoxamide 0.1% by all non-ophthalmologists and prompt referral if the symptoms do not abate.

Refractive error, which, according to the World Health Organization (WHO), is the fourth most important cause of blindness,<sup>12</sup> was found in this study to be the second most common cause of childhood ocular morbidity. In the studies by Ajaiyeoba,<sup>3</sup> Osahon and Dawodu,<sup>6</sup> and Majekodunmi,<sup>7</sup> refractive error was the most common finding. It was found to cause 8% of blindness after age-related macular degeneration, glaucoma and cataract.<sup>12</sup> Quite often, children are referred to the eye clinic by their teachers because of poor performance in school. It is remarkable that in a largely illiterate adult population, children who require glasses are prevented from using them because of the wrongly perceived notion that it will worsen their sight. Early recognition of refractive error and its proper management will go a long way in improving a child's sight and thus his/her performance in school. It will also reduce the incidence of amblyopia later in life. Thus the inclusion of vision screening in the school health programme is justified.

Trauma ranked third among the causes of ocular morbidity, which is similar to the finding in other studies. Likewise, blunt trauma was the most common, with male preponderance.<sup>2, 6, 13</sup> The severity of the injuries often led to profound severe visual loss. Secondary cataract from trauma often results in post-operative amblyopia, because of uncorrected aphakia.<sup>9</sup> We expect that intraocular lens implantation will reduce the incidence of amblyopia, unfortunately, most of our patients cannot afford the cost of surgery. Free medical and surgical care for children will help to alleviate the sufferings of these patients. Cortical blindness resulting from febrile convulsion and from cranial nerve palsy were the most common neuro-ophthalmological causes of ocular morbidity, followed by optic atrophy and nystagmus. This differs from the finding of Akinsola<sup>2</sup> who reported optic atrophy followed by nystagmus as the most common neuro-ophthalmic presentation. Cortical blindness is a significant cause of blindness since it results in binocular blindness. This can be prevented if parents consult orthodox physicians early and are educated on primary measures to take during a convulsion. Overall, there is a decline in post-measles keratopathy, which may be a reflection of positive gains from the National Immunization Programme.

In conclusion, the most common causes of ocular morbidity in this study were allergic conjunctivitis and refractive error, both of which eventually require ophthalmic specialists for effective management. It is important to incorporate basic eye care into primary health care for early recognition of common ocular diseases, initial treatment when necessary, and referral when required.

#### REFERENCES

1. Tebepa T. Pattern of eye diseases in Port Harcourt and an oil producing rural community. *Nig J of Ophthal* 1995; **3(2)**: 7-12.
2. Akinsola FB. Pattern of eye disease in Nigerian children seen at Lagos University Teaching Hospital. *Nig Med Practitioner* 1993; **25**: 47-53.
3. Ajaiyeoba AA. Childhood eye diseases in Ibadan. *Afr J Med Sci* 1994; **23**: 227-31.
4. Abiose A. Paediatric ophthalmic problems in Lagos. *Nig J Trop Paediatr* 1985; **31(1)**: 30-35.
5. Pratap VB and Lal HB. Pattern of paediatric ocular problems in North India. *Indian J Ophthalmol* 1989; **37(4)**: 171-2.
6. Osahon AI and Dawodu OA. Pattern of eye diseases in children in Benin City, Nigeria – a hospital based study. *Tropical Doctor* 2002; **32**: 158-162.
7. Majekodunmi S. Analysis of ophthalmic disease in Nigerian children. *J Pharm & Med Sci* 1979; **5**: 127-129.
8. Ajaiyeoba IA and Akiyinka OO. Response to Hismanal in Nigerian children with vernal conjunctivitis in Ibadan. *Nig J Ophthalmol* 1996; **4(1)**: 7-8.
9. Mark Wood. Conjunctivitis: Diagnosis and management. *Community Eye Health* 1999; **12(30)**: 19-20.
10. Lorenz R, Dodt E and Heider W. Allergic diseases in Swedish school children. *Acta Paediatr Scand* 1989 Mar; **78(2)**: 246 - 52.
11. Caldwell DR and Verin Hartwick-Young R, Meyer SM and Drake MW. Efficacy and safety of Iodoxamide 0.1% vs cromolyn sodium 4% in patients with vernal keratoconjunctivitis. *Am. J Ophthalmology* 1992; **113**: 632-37.
12. Ajaiyeoba AI. Ocular injuries in Ibadan. *Nig J Ophthalmol* 1995; **3(2)**: 23-25.
13. David Yorston. Intraocular lens (IOL) implants in children. *Community Eye Health* 2001; **14(40)**: 57-58.
14. Hugh R. Taylor. Refractive errors: Magnitude of the need. *Community Eye Health* 2000; **13(33)**: 1-2.